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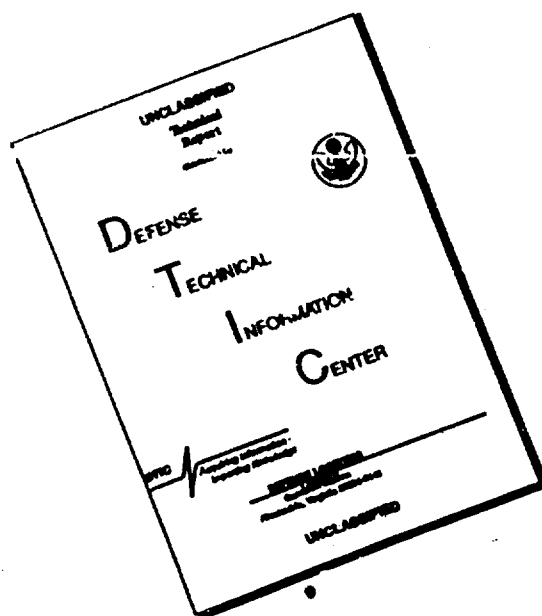
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#172

CLINICAL MEDICINE (USSR), 33(5): 13-19, 1955 (3 Tables)

Q-Fever (Clinics, Diagnosis and Treatment)

Zdrodowski, P. F.

Under Q-fever is described an atypical rickettsiosis, progressing in humans as an acute-fever infection, often accompanied by specific pneumonia and differing from other rickettsiosis by the absence of eruptions and a negative Bail-Felix reaction.

The agent of this infection-Rickettsia burneti is characterized by its ability to form a filtrable form, has a high infection ability, great stability, and in an isolated medium it can be kept for some time. This infection is common in both hemispheres, and therefore has an expansive dissemination in Europe.

The epidemiology of this infection is basically connected to infected agricultural animals, as well as other domestic animals. The agent can also infect some ticks, wild rodents and some domestic birds.

This infection can be transmitted to man through any food stuff, water, or inhaled dust. As a rule, among humans, the means of infection is not certain and can not be considered contagious.

At present this disease is found in almost all countries, the USSR, its bordering countries, Europe and Asia.

This disease is known to only a few specialists, and therefore it is usually diagnosed as some other disease (severe grippe, atypical pneumonia, typhus, etc). A need in this respect is the development of antibiotics for the distinction of this disease, and measures of combatting it.

#### CLINICAL ASPECTS:

Incubation Period. Fluctuates from 10-12 to 14-26 days, with an average of 19 days, being quite severe. Some authors state that the period can be only 3 days; our tests indicate several days in labs.

Initial Effect. There seems to be no initial effect. Eruptions are absent, but can be present in some form (according to american authors).

Fever. The most constant appearance of infection. It usually starts with a chill and after 2-3 days it reaches 39-40; it remains on this level as long as 3 weeks, varying from 2 to 8-10 days, ending with lysis in 2-4 days. American authors say the fever can last 3 months, but after the 3rd week the level is lower. During the temperature curve there can be many remissions, deep and daily. In about 1/3 of the cases there is sweating during the day and night, even into the convalescent period.

Acute headaches are characteristic of the infection. At first they are located in the temples and neck, but become diffused and remain(or can) throughout the illness. Muscular pains are also characteristic, centering in the abdomen and calves. There also are retrobulbar and joint pains. Sometimes there is rigidity of the occiput, which could indicate affection of the brain. The patients generally complain of weakness and loss of sleep. They lack appetite, and there can be nausea, even vomiting, seldom there is diarrhea. Angina is observed sometimes. Catarrhal phenomena of the upper respiratory tract are usually absent. (Ref.: Clark, Lennet, Mermion, Stoker, etc. ).

Roentgenological affection of the lungs is characterized by the presence of circular or cone shaped, less often irregular centers of various (sometimes significant) sizes. These centers usually locate in the lower sections of the lungs. The incorporation of the lymphatic nodes into this process indicates the possibility of an aerogenic infection.

Patients with affection of the lungs develop a cough on the 5-6th day, dry or wet, sometimes with blood. The patients also complain of tightness in the chest, which indicates this process in the lungs. During all this, pneumonia can pass with out any physical signs.

On the cardio-vascular side there are no great changes, other than a mild bradycardia or hypertonia (S. M. Kulagin, 1954).

Affection of the Central nervous system is indicated by the above mentioned headaches, muscular pain and joint pain. The psychiatric sphere does not seem to suffer.

The Liver and Spleen can be enlarged. The urine can contain some passing albuminuria.

In the blood there is first a normal cytosis, then a leukocytosis. The leukocytic formula is characterized by the neutropenia with significant shifts to the left to bacilli forms. The ESR is normal, or advances to 20-30 mm. (S. M. Kulagin, 1954).

The length of the illness (Clark, Lennet and others) is approximately 12 1/2 days, with fluctuations from 1-7 (66 patients) to 43-63 days and more (12 patients of 180 studied by above authors). In a majority of the cases (150 patients) the fever lasted 3 weeks or less, but in 30 patients (17%) it lasted longer-to 4 weeks or more (no longer than 2 months). Mermion, Stoker and others (1953) wrote of one case that lasted 3 months, and one nearly a year. (See Table 1).

As was said above, the clinical form of Q Fever can vary. These include variation of the affection of the lungs, normal blood except for faster ESR, presence of arterial hypotension and variations of the electrocardiogram.

According to Meldolesi these atypical Q fever forms can be put into one of the following groups:

Influenza type-Accompanied by grippe, settles in the lungs.

Septic form-Sepsis accompanied, lasting 4-5 weeks, many complications, can end in death, convalescence is slow and lengthy.

Acute Broncho-pneumonia form-Q Fever accompanying bronchitis and/or pneumonia, affection of the lungs. Very high temperatures, tachycardia cough with wet discharge containing blood and rickettsia. Lethal infection in some cases, often within days after infection. Termination of illness can be in 2-3 weeks or , if residual appearances are there, can last some time.

Sub-acute lung form- Accompanied by infiltration of the lungs, slight or medium fever, presence of lung symptoms (cough, mucus, sometimes with blood). This form is reminiscent of Tuberculosis (in contrast to this it treats well with aureomycin).

Nerve form- Medium form with intermittent fever, nervous affections (meningism, radiculitis, neuritis), presence of rickettsia in the spinal fluid. This form is residual and lengthy.

The other forms conditioned by this author are the Brucellosis type, Subfebril and Latent.

Lethality. During Q Fever the lethality is insignificant. Thus, of 627 registered patients, 5 died; of 326 other patients, 7 died. Of 104 intra-laboratory infected personnel, only one death.

#### Laboratory Diagnosis:

In order to distinguish Q Fever, especially in early stages of an epidemic outbreak, the lab methods have a great significance. Either the isolation or serological method can be used. The allergical reaction can also be used in epidemic conditions.

Isolation of the Agent is the most effective method, but is urgent only in finding new outbreaks of infection.

The Serological method is effective, using the Bernet rickettsia, and can be used epidemically or clinically. In this we can consider the complement fixation and agglutination reaction. This test can be used

10 to 20 days after infection, reaches a maximum later and is effective for months at low titers. (See Table 2).

Allergical Reaction. Along with brucellosis and tularemia, Q fever can be diagnosed by an allergical reaction. Killed Bernet rickettsia are used subcutaneously. This method is quite effective, but lacks study.

The q fever agent enters the body easily and remains for some time. Our tests (30 patients) indicate that there is a reaction from 7-8 days to three years. Thus, the allergical reaction is useful for an early diagnosis and for a later check. This method will someday be fully accepted, but at the present it needs more work.

Treatment:

Our lab tests indicate good results from aureomycin and terramycin. A lesser effect is shown by biomycin.

Biomycin is given the patient at 0.45 g four times daily for 5-6 days. During this the symptoms abate in 24-48 hours, but the treatment should be continued to avert residual effects.

The Soviet Ministry of Health is cooperating in the hospitalization and treatment of this disease, and in the development of new and better methods.

TABLE NO. 1\*\*Frequency of appearance of various clinical symptoms of Q Fever.  
(180 patients involved. Data by Elark, Lennet and others)

CLINICAL SIGN	NUMBER OF PATIENTS	PERCENTAGE OF ALL PATIENTS
Sudden Start	130	72
Gradual Start	50	28
Fever	180	100
Chills	133	74
Sweating	67	37
General Weakness	155	86
Headaches	117	65
Muscular pains	85	47
Joint Pains	20	11
Retrobulbar Pains	23	13
Cough	43	24
Chest Pain	18	10
Pneumonia	22	34(of 65 patients)
Angina	9	5
Head Cold	7	4
Anorexia	77	43
Nausea	40	22
Vomiting	23	13
Diarrhea	9	5
Enlarged Liver	20	11
Enlarged Spleen	7	4
Yellow Jaundice	9	5
Eruption	9	5



TABLE NO. 2\*\*Sero-reaction in Q Fever patients (Clark, Lennet, etc).

Week of Illness	Compliment Fixation			Agglutination Reaction		
	Serum Number	Number of Positive Reactions	Average Titer	Serum Number	Number of Positive Reactions	Average Titer
First	34	3	1:8	30	15	1:8
Second	43	28	1:52	25	23	1:64
Third	37	35	1:128	20	19	1:256
Fourth	40	37	1:128	28	28	1:128

TABLE NO. 3\*\* Compliment Fixation At Various Periods After Convalescent.

Period After Infection	Average Titer of Fixation
1-2 Months	1:256
2-6 Months	1:256
6-12 Months	1:64-1:128
12-28 Months	1:32-1:64